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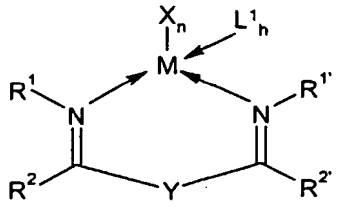
(54) Title: POLYMERIZATION CATALYSTS, PREPARATION OF POLYOLEFINS, ORGANOTRANSITION METAL COMPOUNDS AND LIGANDS



(I)

(57) Abstract: The present invention relates to catalyst systems which can be used for preparing homopolymers or copolymers of olefins and are obtainable by reacting at least one transition metal compound with at least one cocatalyst which is able to convert the transition metal compound into a species which displays polymerization activity toward at least one olefin, wherein the transition metal compound has the formula (I), where M is an element of group 3, 4, 5, 6, 7, 8, 9 or 10 of the Periodic Table of the Elements or the lanthanides, X are identical or different and are each an organic or inorganic anionic monovalent ligand, where two radicals X may also be joined to form a divalent radical, n is 1, 2 , 3 or 4, L^1 is an organic or inorganic uncharged ligand, h is an integer from 0 to 4, R^1 and $R^{1'}$ can be identical or different and are each hydrogen or an organic radical having from 1 to 40 carbon atoms, R^2 and $R^{2'}$ can be identical or different and are each a substituted or unsubstituted C_6-C_{40}-aryl radical or C_2-C_{40}-heteroaromatic radical containing at least one heteroatom selected from the group consisting of O, N, S or P, and Y is a divalent group between the two sp^2-hybridized carbon atoms and is selected from the group consisting of the two-membered bridges -N(R^3)-N(R^4)- and -O-N(R^5)and the one-membered bridges -O-, -N(R^6)-, -N(OR^7)- and -N(NR^8R^9)-, where R^3, R^4, R^5, R^6, R^7, R^8 and R^9 are identical or different and are each hydrogen or an organic radical having from 1 to 40 carbon atoms, where two adjacent radicals may also form a divalent organic group having from 1 to 40 carbon atoms which together with the atom or atoms connecting its ends forms a heterocyclic ring system, to the use of such catalyst systems for preparing polyolefins, to a process for preparing polyolefins by polymerization or copolymerization of at least one olefin in the presence of a catalyst system according to the present invention, to transition metal compounds of the formula (I) themselves, to the use of diimine ligand systems for preparing transition metal compounds and to the preparation of transition metal compounds and specific diimine ligand systems themselves.

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